

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch

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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:** Casey, William**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-027624**Date Inspected:** 17-May-2012**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site

<b>CWI Name:</b>	Bernie Docena and John Pagliero			<b>CWI Present:</b>	<b>Yes</b>	<b>No</b>	
<b>Inspected CWI report:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Rod Oven in Use:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Electrode to specification:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Weld Procedures Followed:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Qualified Welders:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Verified Joint Fit-up:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Approved Drawings:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Approved WPS:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
				<b>Delayed / Cancelled:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Bridge No:</b>	34-0006			<b>Component:</b>	SAS Tower		

**Summary of Items Observed:**

Caltrans Office of Structural Material (OSM) Quality Assurance Inspector (QAI) Joselito Lizardo was present at the Self Anchored Suspension (SAS) job site as requested to perform observations on the welding of components for the San Francisco Oakland Bay Bridge (SFOBB) Project.

At Tower Base 13 meter outer West external diaphragm, QA randomly observed ABF/JV qualified welder Xiao Jian Wan continuing to perform Partial Joint Penetration (PJP) T-joint welding fill pass on 80mm thick shear plate to 45mm thick diaphragm plate weld joint #W110. The welder was observed welding in the 2G (horizontal) position utilizing a dual shield Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1/16" diameter wire electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-3160-1. The welder was using a track mounted welder holder assembly that was remotely controlled. The PJP T- joint was preheated to greater than 325 degrees Fahrenheit using Miller Proheat 35 Induction Heating System with the heater blankets located on top of the plate prior welding. During welding, ABF Quality Control (QC) Bernie Docena was noted monitoring the welding parameters of the welder. Measured welding parameters during welding were 246 amperes, 23.0 volts and 300mm travel speed. Calculated heat input was 1.13 Kjoules/mm which appears in compliance to the contract requirements. At the end of the shift, FCAW-G fill pass welding was still continuing and should remain tomorrow. The welder held the preheat using the same Miller Proheat 35 Heating System for three hours after welding as required.

At Tower Base Electro Slag Weld (ESW), QA randomly observed ABF/JV qualified welder Jin Pei Wang continuing to perform CJP groove welding repair. The welder was observed welding in the 3G (vertical) position utilizing Shielded Metal Arc Welding (SMAW) with 3.2mm diameter E7018H4R electrode implementing welding

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procedure ABF-WPS-D15-1000-Repairs. The repair excavation was preheated to more than 300 degree Fahrenheit using propylene gas torch prior welding. The ESW repair being welded at Y=9100mm was approved per Request for Welding Repair (RWR) #201205-005 dated May 11, 2013. During the shift, ABF QC John Pagliero was noted monitoring the welder. The first time repair was noted being welded during the shift;

Location	Weld No.	Y-dim.	Length	Width	Depth	Remarks
1. ESW 'F'	E-045	9100mm	180mm	35mm	40mm	Completed

At Tower Base Electro Slag Weld (ESW), QA randomly observed ABF/JV qualified welder Richard Garcia continuing to perform CJP groove welding repair. The welder was observed welding in the 3G (vertical) position utilizing Shielded Metal Arc Welding (SMAW) with 3.2mm and 4.0mm diameter E7018H4R electrode implementing welding procedure ABF-WPS-D15-1000-Repairs. The repair excavation was preheated to more than 300 degree Fahrenheit using propylene gas torch prior welding. The ESW repair being welded was located at ESW 'P' with Y=100mm was approved per Request for Welding Repair (RWR) #201204-010. During the shift, ABF QC John Pagliero was noted monitoring the welder. The first time repair was noted being welded during the shift;

Location	Weld No.	Y-dim.	Length	Width	Depth	Remarks
1. ESW 'P'	N-043	100mm	660mm	67mm	52mm	Completed

At Tower Base Electro Slag Weld (ESW), QA randomly observed ABF/JV qualified welder Wai Kitlai continuing to perform CJP groove welding repair. The welder was observed welding in the 3G (vertical) position utilizing Shielded Metal Arc Welding (SMAW) with 3.2mm diameter E7018H4R electrode implementing welding procedure ABF-WPS-D15-1000-Repairs. The repair excavation was preheated to more than 300 degree Fahrenheit using propylene gas torch prior welding. The ESW repair being welded was located at ESW 'F' face B with Y=4710mm was approved per Request for Welding Repair (RWR) #201205-010. During the shift, ABF QC John Pagliero was noted monitoring the welder. The first time repair was noted being welded during the shift;

Location	Weld No.	Y-dim.	Length	Width	Depth	Remarks
1. ESW 'F'	E-045	4710mm	250mm	20mm	15mm	Completed

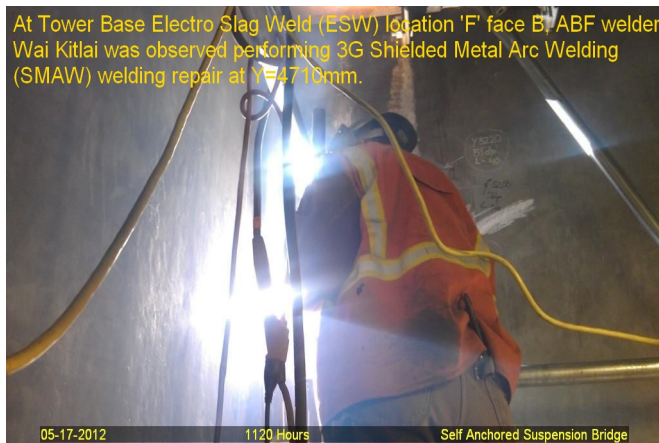
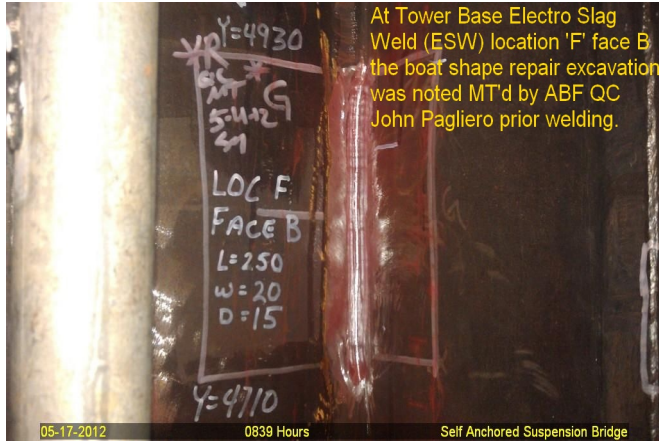
At Tower Base 13 meter diaphragm, this QA together with ABF QC Bernie Docena performed a joint verification on the fit up of the 60mm thick shear plate to 45mm thick North external diaphragm Partial Joint Penetration T-joint. During the verification, there was root gap of 1mm minimum to 7mm maximum to a spread length of 1840mm. The West end was measured 5.5mm to 7mm with affected length of 640mm which is not in compliance to the contract documents. This information was brought to the attention of Lead QA Danny Reyes who also conveyed the same information to Lead QC Bonifacio Daquinag. According to Mr. Daquinag, he will relay the measurement readings to ABF QC Manager Jim Bowers and advise him that a RWR is warranted.

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## Summary of Conversations:

No significant conversation occurred today.

## Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact SMR Nina Choy 510-385-5910, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Lizardo, Joselito	Quality Assurance Inspector
<b>Reviewed By:</b>	Levell, Bill	QA Reviewer

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